

factors include income and distance to facility; we further consider how quality of local healthcare facilities correlates with women's decisions to have in-facility births.

Methods: We rely on publicly available facility and individual-level data from Demographic and Health Surveys (DHS). Facility data is from the 2013–2014 Service Provision Assessment (SPA) survey, which characterizes Malawi's health service facilities. We use SPA data to construct a metric for facility quality, aggregating availability of various resources relevant to pregnancy outcomes.

The 2010 Standard DHS survey asks women to identify who assisted with delivery: health personnel, another person–friend/relative or traditional birth attendant, other, or no one. Because both datasets are GPS-linked, we can directly measure how quality of nearby healthcare facilities correlates with a mother's decision to have an in-facility birth. Spatial analysis will be conducted using ArcGIS, and our regression will control for other effects.

Findings: Analysis is in progress. However, heterogeneity in facility quality is evident: for example, among 528 facilities offering delivery services, only 13% provide Caesarean delivery; 6% use the dangerous practice of giving newborns full baths. There is also variation in the decision to have an in-facility birth: the 2010 DHS report shows only three-quarters of births (73%) took place in a health facility.

Interpretation: Understanding drivers behind women's decisions to have in-facility births is crucial for improving pregnancy outcomes. Furthermore, this study's spatial analysis allows us to identify hotspots of need: where women are most likely to not seek skilled healthcare personnel during childbirth, and where lesser quality healthcare is prevalent. This will be instrumental for planning policy.

Funding: None.

Abstract #: 1.041_MDG

The addition of whey permeate to ready-to use supplementary food improves recovery from moderate acute malnutrition

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Background: Moderate acute malnutrition (MAM) is highly prevalent worldwide and affected children may suffer from lasting consequences including growth stunting and cognitive impairment. Ready-to-use supplementary food products have been developed to treat MAM in children, however the optimal nutrient composition is still debated. Prior studies suggest that dairy protein, in comparison to plant-based protein, increases lean body mass, accelerates linear growth, and improves recovery from malnutrition. We hypothesize that the use of whey protein in supplementary food for malnourished children will be beneficial and lead to improved outcomes.

Methods: We conducted a prospective, double-blinded randomized controlled clinical trial to compare a whey-based versus soy-based ready-to-use supplemental food (RUSF) product. Children aged

6–59 months with MAM, defined by mid-upper-arm circumference (MUAC) of 11.5–12.4 cm were enrolled at a total of 18 sites in southern Malawi from February 2013 to November 2014. Once enrolled, children were randomized to receive soy RUSF versus whey RUSF. Caregivers were given supplies of RUSF to feed to their children at a dose of 75 kcal/kg/day. Children returned for follow up visits every two weeks and were monitored for clinical improvement by MUAC, height, and weight. Primary outcome was recovery from MAM by reaching a MUAC of 12.5 cm within 12 weeks of initiating therapy. Secondary outcomes included change in MUAC, weight, and length as well as time to recovery and adverse events.

Findings: A total of 2259 children were enrolled in the study. Baseline characteristics were similar between the two groups. The percentage of children who successfully recovered from MAM was higher in the whey RUSF group at 83.9% vs. 80.5% ($p < 0.04$; RR=1.043, 95% CI: 1.003, 1.084). The average MUAC at time of recovery was also greater in the whey RUSF group as compared to the soy RUSF group ($p < 0.009$). Children randomized to the whey RUSF group had higher average daily MUAC gain ($p < 0.003$). No significant adverse events were identified.

Interpretation: In this randomized, prospective, clinical trial, we demonstrate that RUSF formulated from whey permeate improves nutritional recovery and anthropometry in the treatment of MAM in children in sub-Saharan Africa.

Funding: Scandinavian Dairy Association.

Abstract #: 1.042_MDG

Implementing targeted interdisciplinary solutions to health barriers through experiential learning projects: the Northwestern access to health project in Mali

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Program/Project Purpose: The Northwestern Access to Health Project (ATH) is an interdisciplinary global community health project that brings together law, public health, and business faculty and graduate students with communities, local health advocates, and human rights organizations. ATH aims to balance cross-disciplinary academic learning environments with realistic, sustainable interventions, utilizing diverse perspectives to reduce challenges associated with mono-dimensional, non-consultative interventions. Multidimensional approaches generate targeted and adaptable projects as solutions to health barriers.

In 2013, ATH began working with communities and advocates in the Mopti region of Mali to create innovative, low-resource interventions to reduce female genital cutting (FGC). With an 89% prevalence rate, FGC—"partial or total removal of the external female genitalia"—contributes to high maternal mortality, infection, girl child death, and disability. ATH develops creative, multi-sectoral interventions to address the complex interaction between the tradition of FGC and the realization of SDG 3—Good Health.